FLWEMS Paramedic Medication Information For:
SODIUM BICARBONATE

(**SO**-dee-um bye-**KAR**-bon-ayt)

Pregnancy Category: C Arm and Hammer Pure Baking Soda Bell/ans Citrocarbonate Neut Soda Mint (Rx and OTC)

Classification
Alkalinizing agent, antacid, electrolyte

Action/Kinetics
The antacid action is due to neutralization of hydrochloric acid by forming sodium chloride and carbon dioxide (1 g of sodium bicarbonate neutralizes 12 mEq of acid). Provides temporary relief of peptic ulcer pain and of discomfort associated with indigestion. Although widely used by the public, sodium bicarbonate is rarely prescribed as an antacid because of its high sodium content, short duration of action, and ability to cause alkalosis (sometimes desired). Is also a systemic and urinary alkalinizer by increasing plasma and urinary bicarbonate, respectively.

Uses
Treatment of hyperacidity, severe diarrhea (where there is loss of bicarbonate). Alkalization of the urine to treat drug toxicity (e.g., due to barbiturates, salicylates, methanol). Treatment of acute mild to moderate metabolic acidosis due to shock, severe dehydration, anoxia, uncontrolled diabetes, renal disease, cardiac arrest, extracorporeal circulation of blood, severe primary lactic acidosis. Prophylaxis of renal calculi in gout. During sulfonamide therapy to prevent renal calculi and nephrotoxicity. Neutralizing additive solution to decrease chemical phlebitis and client discomfort due to vein irritation at or near the site of infusion of IV acid solutions. *Investigational:* Sickle cell anemia.

Contraindications
Chloride loss due to vomiting or from continuous GI suction. With diuretics known to produce a hypochloremic alkalosis. Metabolic and respiratory alkalosis. Hypocalcemia in which alkalosis may cause tetany. Hypertension, convulsions, CHF, and other situations where administration of sodium can be dangerous. As a systemic alkalinizer when used as a neutralizing additive solution. As an antidote for strong mineral acids because carbon dioxide is formed, which may cause discomfort and even perforation.

Special Concerns
Use with caution in impaired renal function, toxemia of pregnancy, with oliguria or anuria, during lactation, in edema, CHF, liver cirrhosis, with low-salt diets, and in geriatric or postoperative clients with renal or CV insufficiency with or without CHF.

Side Effects
GI: Acid rebound, gastric distention. *Milk-alkali syndrome:* Hypercalcemia, metabolic alkalosis (dizziness, cramps, thirst, anorexia, N&V, hyperexcitability, tetany, diminished breathing, *seizures***)**, renal dysfunction. *Miscellaneous:* Systemic alkalosis after prolonged use. *Following rapid infusion:* Hypernatremia, alkalosis, hyperirritability, tetany, fluid or solute overload. Extravasation following IV use may manifest ulceration, sloughing, cellulitis, or tissue necrosis at the site of injection.

Overdose Management
Symptoms: Severe alkalosis that may be accompanied by tetany or hyperirritability. *Treatment:* Discontinue sodium bicarbonate. Reverse symptoms of alkalosis by rebreathing expired air from a paper bag or using a rebreathing mask. Use an IV infusion of ammonium chloride solution, 2.14%, to control severe cases. Treat hypokalemia by IV sodium chloride or potassium chloride. Calcium gluconate will control tetany.

Drug Interactions
Amphetamines / ↑Amphetamine effect by ↑renal tubular reabsorption *Antidepressants, tricyclic* / ↑TCA effect by ↑renal tubular reabsorption *Benzodiazepines* / ↓Benzodiaepine effect R/T ↑urine alkalinity *Chlorpropamide* / ↑Chlorpropamide excretion rate R/T urine alkalinization *Ephedrine* / ↑Ephedrine effect by ↑renal tubular reabsorption *Erythromycin* / ↑Erythromycin effect in urine R/T ↑urine alkalinity *Flecainide* / ↑Flecainide effect R/T ↑urine alkalinity *Iron products* / ↓Iron effects R/T ↑urine alkalinity *Ketoconazole* / ↓ Ketoconazole effect R/T ↑urine alkalinity *Lithium carbonate* / Excretion of lithium proportional to amount of

sodium ingested. If client on sodium-free diet, may develop lithium toxicity R/T ↓lithium excreted *Mecamylamine* / ↓Mecamylamine excretion R/T alkalinization of the urine *Methenamine compounds* / ↓ Methenamine effect R/T ↑urine alkalinity *Methotrexate* / ↑Renal methotrexate excretion R/T alkalinization of the urine *Nitrofurantoin* / ↓Nitrofurantoin effect R/T ↑urine alkalinity *Procainamide* / ↑Procainamide effect R/T ↓kidney excretion *Pseudoephedrine* / ↑Pseudoephedrine effect R/T ↑tubular reabsorption *Quinidine* / ↑Quinidine effect by ↑renal tubular reabsorption *Salicylates* / ↑Rate of salicylate excretion R/T alkalinization of the urine *Sulfonylureas* / ↓Sulfonylurea effect R/T ↑urine alkalinity *Sympathomimetics* / ↓ Sympathomimetic renal excretion R/T alkalinization of the urine *Tetracyclines* / ↓Tetracycline effect R/T ↑ kidney excretion

How Supplied
Granule, effervescent; *Injection:* 4%, 4.2%, 5%, 7.5%, 8.4%; *Powder*; *Tablet:* 325 mg, 520 mg, 648 mg, 650 mg

Dosage
•Effervescent Powder *Antacid.*
Adults: 3.9-10 g in a glass of cold water after meals. Geriatric and pediatric, 6-12 years: 1.9-3.9 g after meals.

•Oral Powder *Antacid.*
Adults: 1/2 teaspoon in a glass of water q 2 hr; adjust dosage as required.
Urinary alkalinizer.
Adults: 1 teaspoon in a glass of water q 4 hr; adjust dosage as required. Dosage not established for this form for children.

•Tablets *Antacid.*
Adults: 0.325-2 g 1-4 times/day; pediatric, 6-12 years: 520 mg; may be repeated once after 30 min.
Urinary alkalinizer.
Adults, initial: 4 g; then, 1-2 g q 4 hr. Pediatric: 23-230 mg/kg/day; adjust dosage as needed.

•IV *Cardiac arrest.*
Adults: 200-300 mEq given rapidly as a 7.5% or 8.4% solution. In emergencies, 300-500 mL of a 5% solution given as rapidly as possible without overalkalinizing the client. Infants, less than 2 years of age, initial: 1-2 mEq/kg/min given over 1-2 min; then 1 mEq/kg q 10 min of arrest. Do not exceed 8 mEq/kg/day.
Severe metabolic acidosis.
90-180 mEq/L (about 7.5-15 g) at a rate of 1-1.5 L during the first hour. Adjust to needs of client.
Less severe metabolic acidosis.
Add to other IV fluids. Adults and older children: 2-5 mEq/kg given over a 4- to 8-hr period.
Neutralizing additive solution.
One vial of neutralizing additive solution added to 1 L of commonly used parenteral solutions, including dextrose, NaCl, and Ringer's.

END OF INFORMATION – NOTHING FOLLOWS